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**Lai**

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(54) **MEASURING WHEEL**

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***G01B 3/12*** (2006.01)

(52) **U.S. Cl.**
USPC ..... **33/782**; 33/772

(58) **Field of Classification Search**
USPC ..... 33/772–782
See application file for complete search history.

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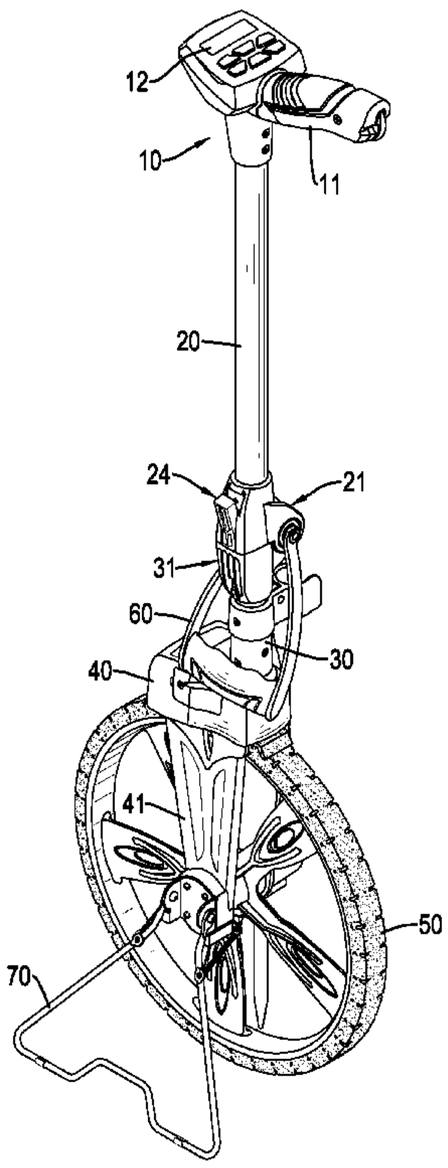
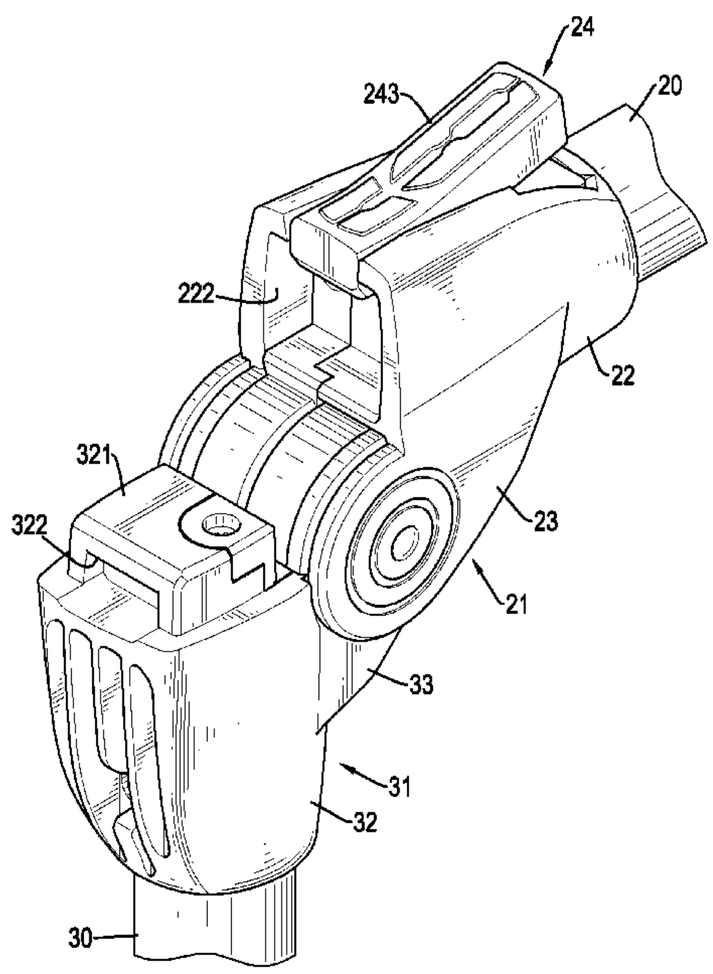
(57) **ABSTRACT**

A measuring wheel includes a handle set, a first rod, a second rod, a wheel seat and a wheel. The first rod is mounted on the handle set and has a first seat mounted on the first rod. The first seat includes a first body, a first pivotal portion and a buckling unit. The first body has an assembling groove and a supporting recess. The second rod is pivotally connected with the first rod and has a second seat assembled with the first seat. The second seat includes a second body and a second pivotal portion. The second body has a supporting block and a buckling groove defined in the supporting block. The buckling unit has an end aligning with an outer periphery of the supporting recess in the bottom surface of the first body to prevent from hitting.

**13 Claims, 7 Drawing Sheets**



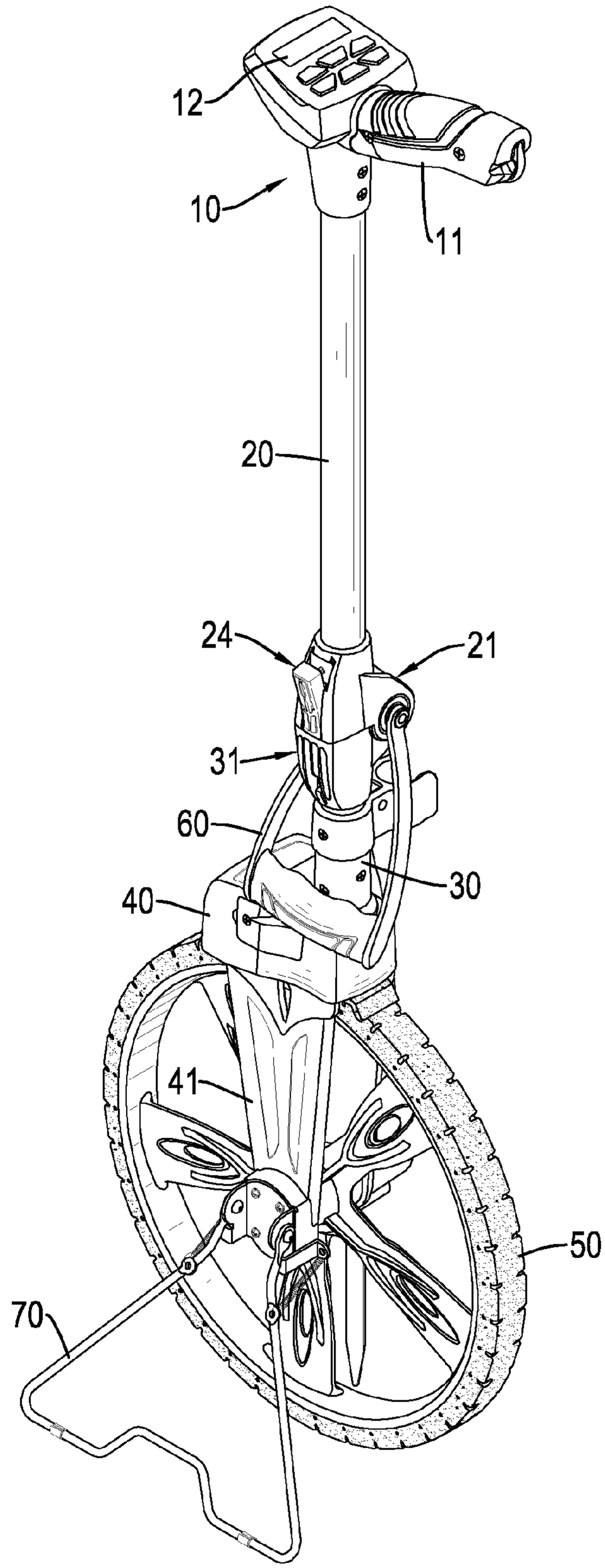



FIG.1

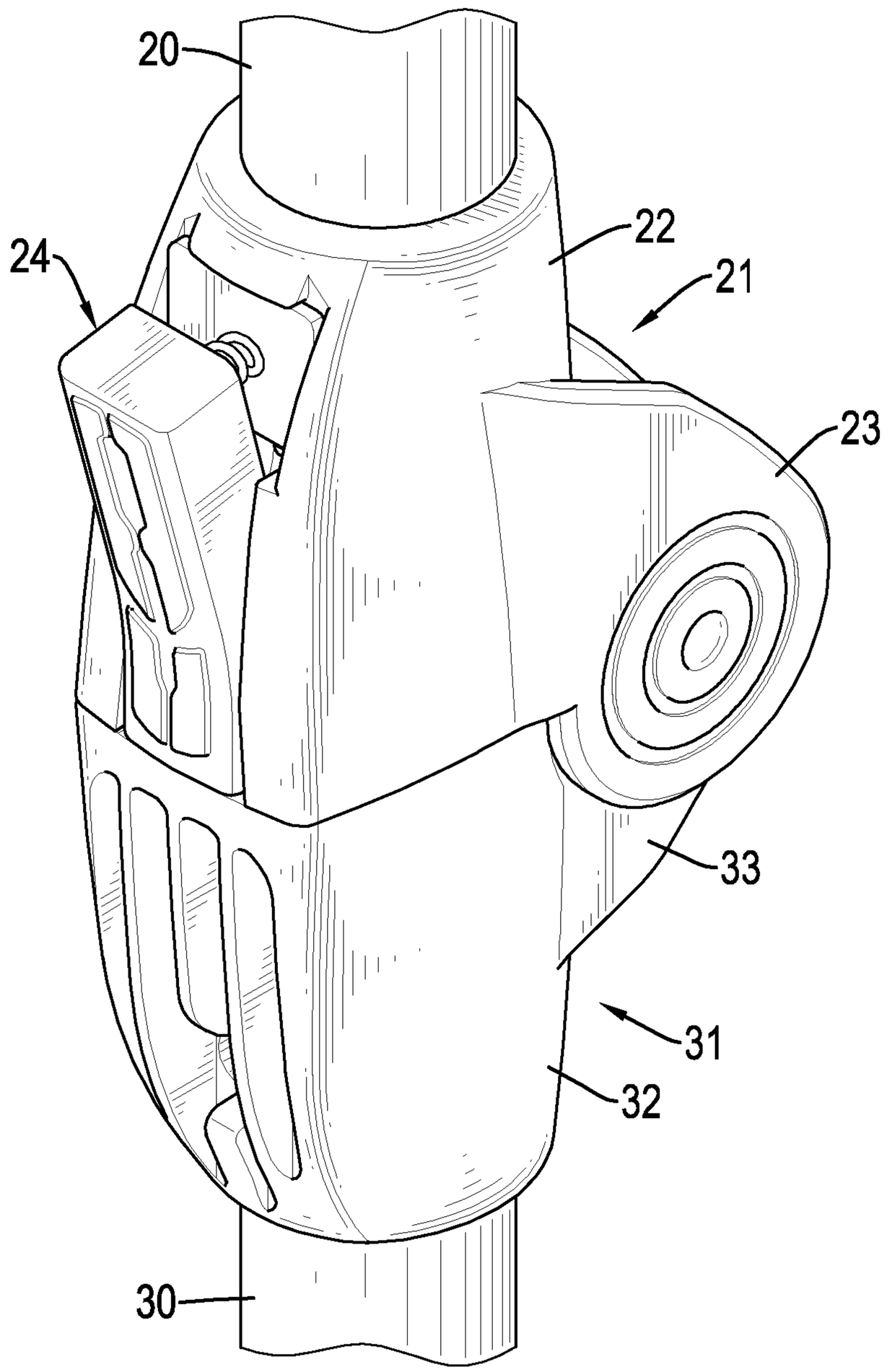



FIG.2

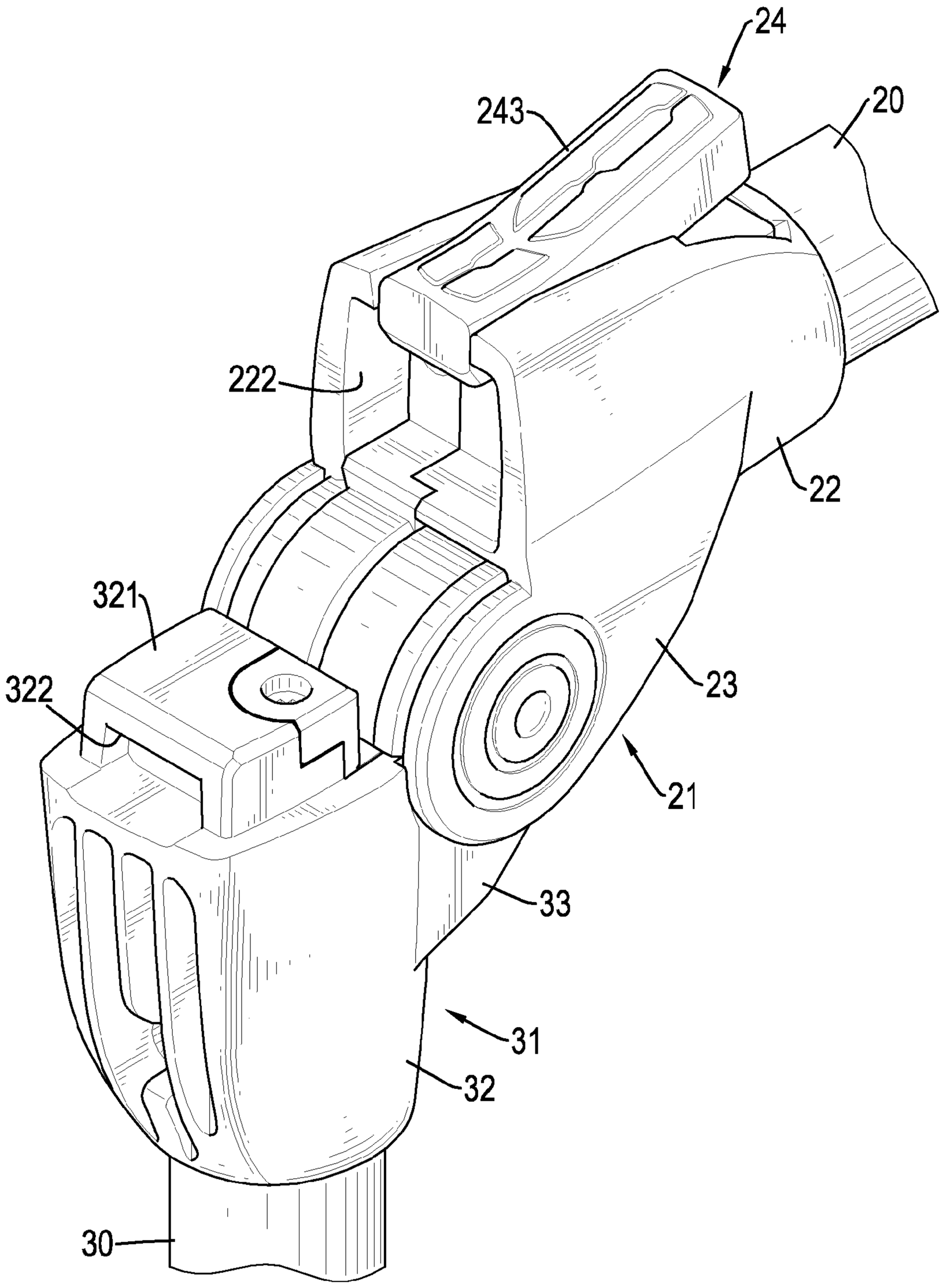



FIG.3

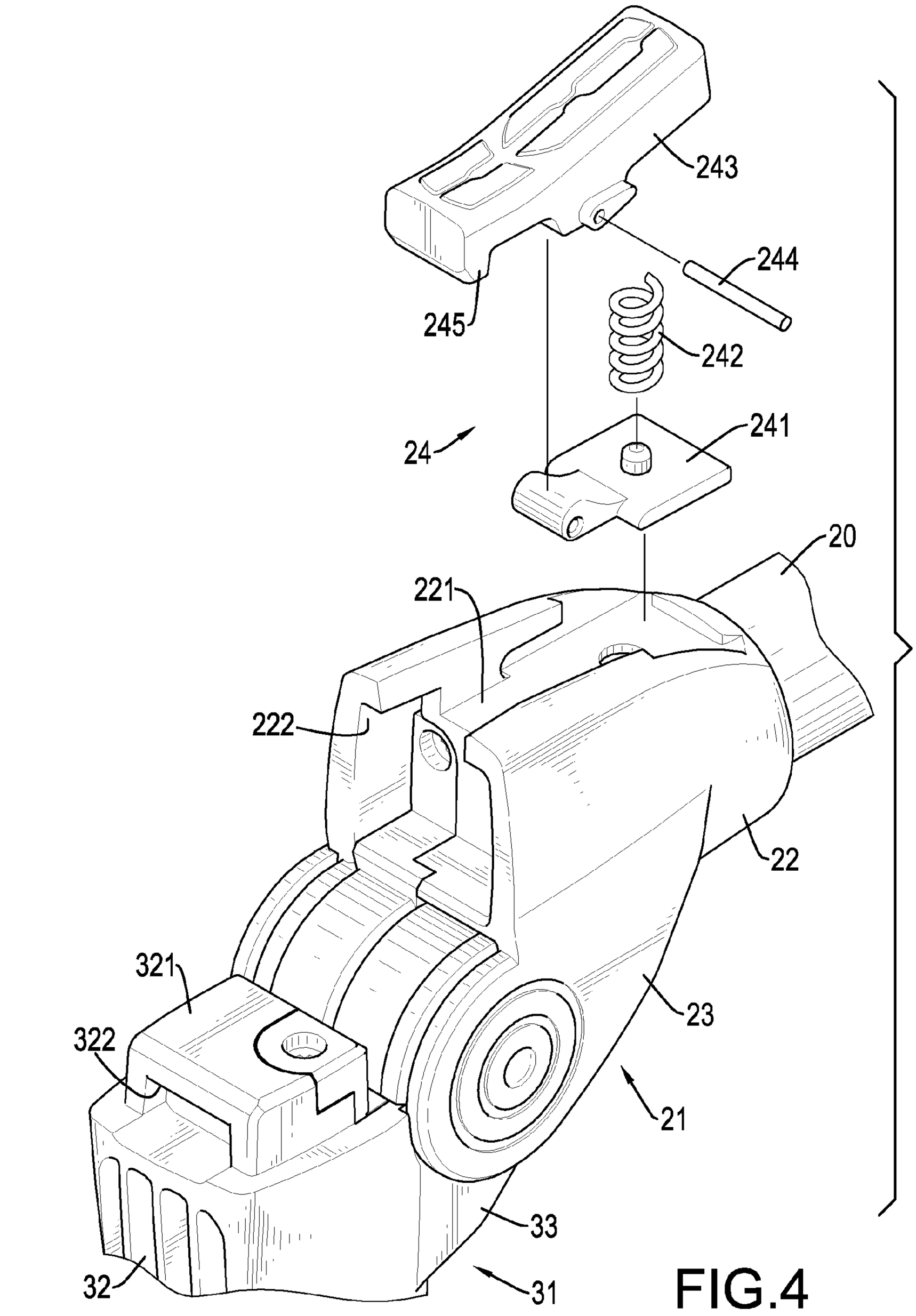



FIG.4

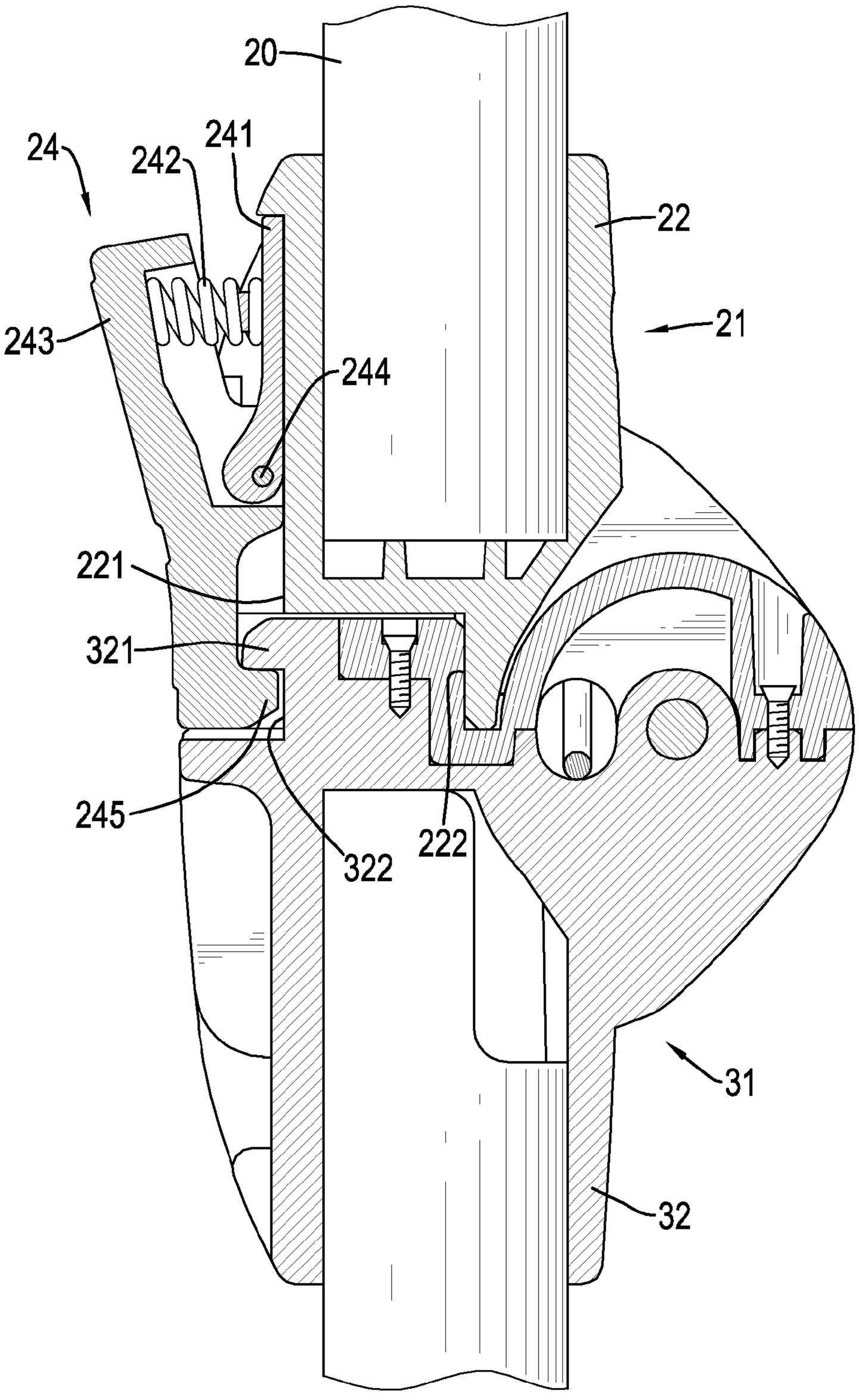



FIG.5

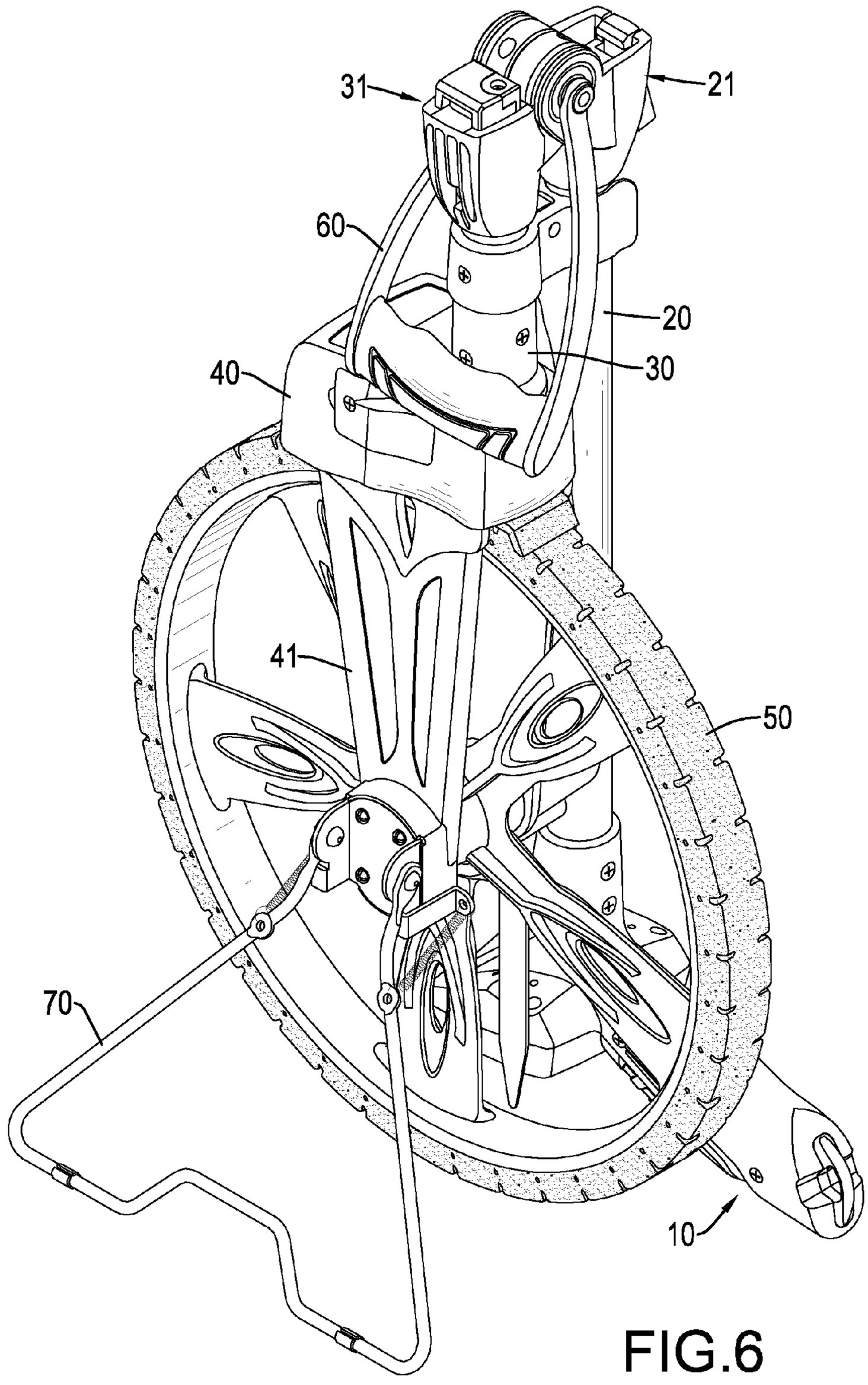



FIG.6

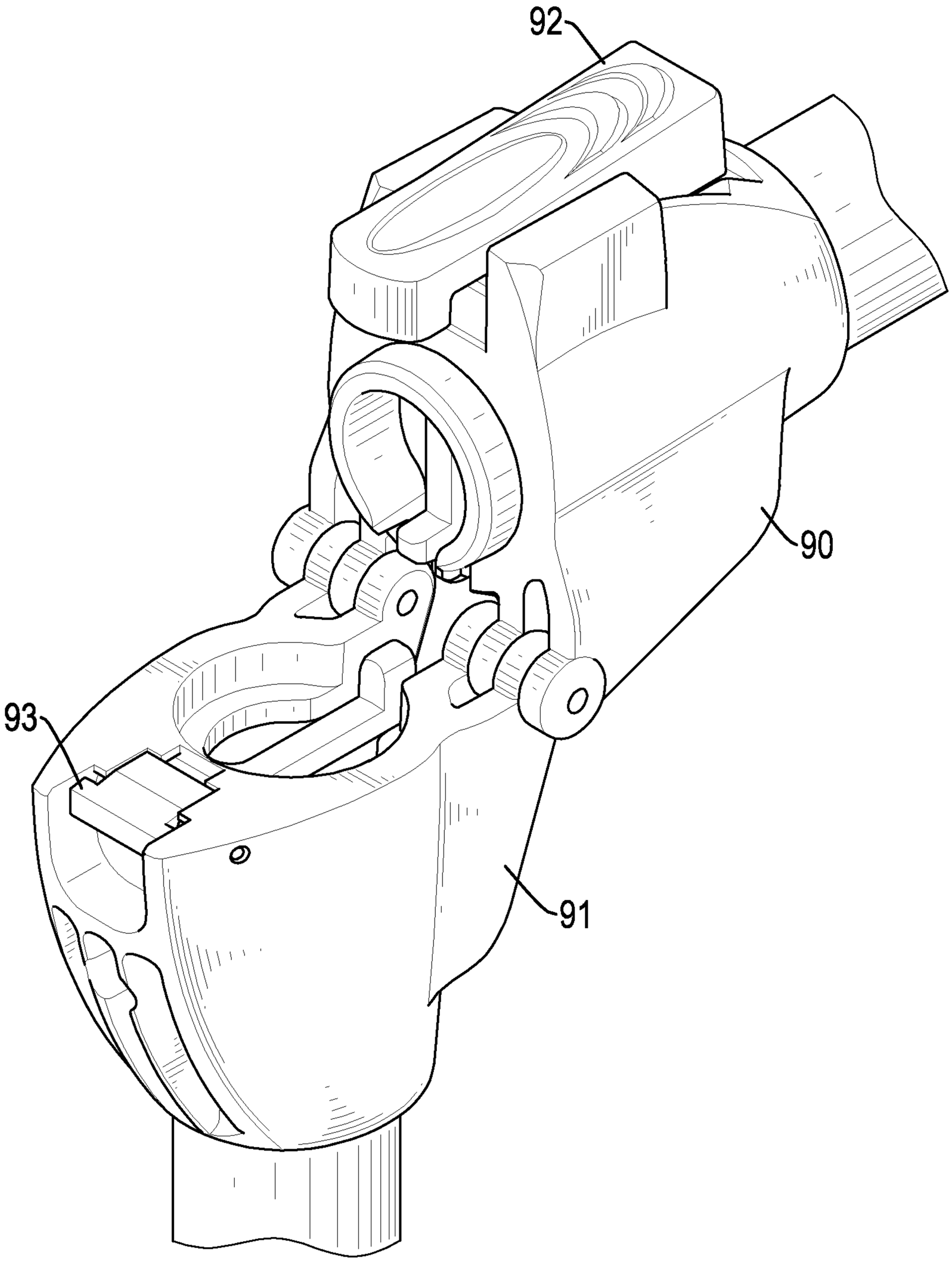



FIG.7
PRIOR ART

# MEASURING WHEEL

## BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a measuring device, and more particularly to a measuring wheel.

2. Description of Related Art

With reference to FIG. **7**, a conventional measuring wheel includes a handle, a panel connected to the handle, a first rod **90**, a second rod **91**, a locker **92** and a locking portion **93**. The first rod **90** has two ends. One of the ends of the first rod **90** is connected to the handle and the other one of the ends of the first rod **90** is pivotally connected to the second rod **91**. The second rod **91** is rotatably connected to a wheel. The locker **92** is pivotally mounted on the first rod **90** and is located between the first rod **90** and the second rod **91**. The locker **92** protrudes from a distal end of the first rod **90**. The locking portion **93** is disposed on a distal end of the second rod **91** and aligns the distal end of the second rod **91**. The locker **92** is pivotally buckled on the locking portion **93** such that the first rod **90** and the second rod **91** are co-axially fixed relative to each other.

However, the locker **92** protrudes from the distal end of the first rod **90** for buckling on the locking portion **93**. When the conventional measuring wheel is folded and the first rod **90** is pivoted relative to the second rod **91**, the locker **92** sticks out from the whole conventional measuring wheel and is easily hit and broken, such that the first rod **90** is not able to be fastened to the second rod **91**.

To overcome the shortcomings, the present invention tends to provide a measuring wheel to mitigate or obviate the aforementioned problems.

## SUMMARY OF THE INVENTION

The main objective of the invention is to provide a measuring wheel that includes a handle set, a first rod, a second rod, a wheel seat and a wheel. The handle set includes a handle and a panel mounted on the handle.

The first rod is mounted on the handle set and has a first seat mounted on one end of the first rod. The first seat includes a first body, a first pivotal portion and a buckling unit. The first body is disposed on the end of the first seat and has an assembling groove defined in a side of the first body and a supporting recess defined in a bottom surface of the first body and communicating with the assembling groove. The first pivotal portion extends from the first body. The buckling unit is pivotally mounted in the assembling groove in the first body and is located adjacent to the bottom surface of the first body. The second rod is pivotally connected with the first rod and has a second seat mounted on one end of the second rod and pivotally assembled with the first seat of the first rod. The second seat includes a second body and a second pivotal portion. The second body is disposed on the end of the second rod and has a supporting block protruding from the second body for correspondingly inserting into the supporting recess. The supporting block has a buckling groove defined in one side of the supporting block for selectively receiving the buckling unit. The second pivotal portion extends from a top of the second seat and is pivotally connected to the first pivotal portion. The wheel seat is mounted on the second rod and is located opposite to the second seat. The wheel is rotatably mounted on the wheel seat.

The buckling unit has one end aligning with an outer periphery of the supporting recess in the bottom surface of the first body.



Other objects, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a measuring wheel in accordance with the present invention;

FIG. **2** is an enlarged perspective view of a first seat and a second seat of the measuring wheel in FIG. **1**;

FIG. **3** is an operational perspective view of the first seat and the second seat in FIG. **2**, shown the first seat is pivoted relative to the second seat;

FIG. **4** is an exploded perspective view in partial section in FIG. **3**;

FIG. **5** is a side view in partial section of the handle seat and the joint seat in FIG. **2**;

FIG. **6** is an operational perspective view of the measuring wheel in folding position in FIG. **1**; and

FIG. **7** is a perspective view of a first rod and a second rod of a conventional measuring wheel in accordance with the prior art.

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

With reference to FIGS. **1** to **3**, a measuring wheel in accordance with the present invention comprises a handle set **10**, a first rod **20**, a second rod **30**, a wheel seat **40**, a wheel **50**, an ear **60** and a stand **70**.

The handle set **10** comprises a handle **11** and a panel **12** mounted on the handle **11**. Preferably, the panel **12** can be an electrical control panel or a mechanical displaying panel.

With reference to FIGS. **2** to **4**, the first rod **20** has two ends and a first seat **21**. One of the ends of the first rod **20** is mounted on the handle set **10**. The first seat **21** is mounted on the other one of the ends of the first rod **20**. The first seat **21** has a first body **22**, a first pivotal portion **23** and a buckling unit **21**. The first body **22** is disposed on the first seat **21** and has an assembling groove **221** and a rectangular supporting recess **222**. The assembling groove **221** is longitudinally defined in a side surface of the first body **22**. The supporting recess **222** is defined in a bottom surface of the first body and communicates with the assembling recess **221**. A periphery of the supporting recess **222** in the first body **22** is flush to form a plane. The first pivotal portion **23** protrudes from a side of the first body **22**, is located opposite to the assembling groove **221** and extends downwardly to protrude from the bottom of the first body **22**. The buckling unit **24** is pivotally mounted on the first body **22** and is received in the assembling groove **221**. The buckling unit **24** comprises a pivotal board **21**, a resilient member **242**, a pivotal clasp **243** and a pintle **244**. The pivotal board **241** is pivotally mounted on the first body **22** and is received in the assembling groove **221**. The resilient member **242** has two ends. One of the ends of the resilient member **242** is mounted on the pivotal board **241** and the other one of the ends of the resilient member **242** abuts on the pivotal clasp **243**. Preferably, the resilient member **242** is a spring. The pivotal clasp **243** is in an elongated rectangular shape and is pivotally mounted on the pivotal board **241**. The pivotal clasp **243** has one end aligning with the plane of the bottom surface of the first body **22** and a protrusion **245** inwardly extending from the end of the pivotal clasp **243**. The pintle **244** is mounted through the pivotal board **241** and the pivotal clasp **243** for pivotally assembling the pivotal board **241** and the pivotal clasp **243** with the first body **22**.

The second rod **30** has two ends. One of the ends of the second rod **30** is pivotally connected with the first rod **20** and the other one of the ends of the second rod **30** is mounted on the wheel seat **40**. The second rod **30** has a second seat **31** pivotally connected to the first seat **21** of the first rod **20**. The second seat **31** has a second body **32** and a second pivotal portion **33**. The second body **32** is disposed on the second rod **30**. The second body **32** has a rectangular supporting block **321** protruding from a top of the second body **32** for correspondingly inserting into the supporting recess **222**. The supporting block **321** has a buckling groove **322** defined in one side of the supporting block **322** for correspondingly receiving the protrusion **245** of the buckling unit **24**. The second pivotal portion **33** protrudes from a side of the second body **32**, is located opposite to the buckling groove **322** and extends upwardly to protrude from the top of the second body **32**. The second pivotal portion **33** is pivotally and correspondingly connected with the first pivotal portion **23**, such that the first seat **21** is pivotable relative to the second seat **31** as a pivot of the first pivotal portion **23** and the second pivotal portion **33**.

The wheel seat **40** is mounted on the second rod **30** and has two connecting plates **41** extending from the wheel seat **40**. A measuring mechanism is mounted in the wheel seat **40** for detecting a rotational displacement of the wheel **50**.

The wheel **50** is rotatably mounted between the two connecting plates **41** of the wheel seat **40**.

An ear **60** has two ends respectively and pivotally connected to two sides of the first seat **21**. The ear **60** is formed of rubber and is bendable.

A stand **70** is pivotally mounted on one of the two connecting plates **41** of the wheel seat **40** for providing a support.

With reference to FIG. **5**, the protrusion **245** of the pivotal clasp **243** is received in the buckling groove **322** and abuts to the inner surface of the buckling groove **322**. The first seat **21** of the first rod **20** is fixed on the second seat **31** of the second rod **30**, such that the first rod **20** axially aligns with the second rod **30**. The supporting block **321** is correspondingly received in the supporting recess **222** for strengthening an inner surface of the supporting recess **222** in the first body **22** and enhancing a connection between the first seat **21** and the second seat **31**.

With reference to FIG. **6**, one end of the pivotal clasp **243**, which is opposite to the end of the protrusion **245**, is pressed and is pivoted. The protrusion **245** is detached from the buckling groove **322**, such that the first rod **20** and the handle set **10** are folded relative to the second rod **30**, the wheel seat **40** and the wheel **50**. The first rod **20** is pivoted relative to the second rod **30** and is parallel to the second rod **30**. The ear **60** is upwardly pivoted for carrying purpose. The supporting recess **222** orients upwardly. The pivotal clasp **243** aligns with the plane formed on the periphery of the supporting recess **222** in the bottom surface of the first body **22** and does not protrude from the plane, such that the pivotal clasp **243** is protected by the first body **22** located at an inner side of the supporting recess **222** to prevent from hitting.

Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.



What is claimed is:

**1**. A measuring wheel comprising:

a handle set including a handle and a panel mounted on the handle;

a first rod mounted on the handle set and having a first seat mounted on the first rod, the first seat including

a first body disposed on the end of the first seat and having an assembling groove defined in a side of the first body and a supporting recess defined in a bottom surface of the first body and communicating with the assembling groove;

a first pivotal portion extending from the first body; and

a buckling unit pivotally mounted in the assembling groove in the first body and located adjacent to the bottom surface of the first body; and

a second rod pivotally connected with the first rod and having a second seat mounted on the second rod and pivotally assembled with the first seat of the first rod, the second seat including

a second body disposed on the end of the second rod and having a supporting block protruding from the second body for correspondingly inserting into the supporting recess, the supporting block having a buckling groove defined in one side of the supporting block for selectively receiving the buckling unit; and

a second pivotal portion extending from a top of the second seat and pivotally connected to the first pivotal portion; and

a wheel seat mounted on the second rod and located opposite to the second seat; and

a wheel rotatably mounted on the wheel seat.

**2**. The measuring wheel as claimed in claim **1**, wherein the buckling unit has one end aligning with an outer periphery of the supporting recess in the bottom surface of the first body.

**3**. The measuring wheel as claimed in claim **2**, wherein the buckling unit includes

a pivotal board pivotally mounted on the first body and received in the assembling groove;

a resilient member mounted on the pivotal board;

a pivotal clasp pivotally mounted on the pivotal board, abutting against the resilient member, having one end aligning with the bottom surface of the first body, and having a protrusion inwardly extending from the end of the pivotal clasp for corresponding to the buckling groove in the second body; and

a pintle mounted through the pivotal board and the pivotal clasp for pivotally assembling the pivotal board and the pivotal clasp with the first body.

**4**. The measuring wheel as claimed in claim **3**, wherein the wheel seat has a stand pivotally mounted on one side of the wheel seat.

**5**. The measuring wheel as claimed in claim **4** further comprising an ear having two ends respectively and pivotally connected to two sides of the wheel seat.

**6**. The measuring wheel as claimed in claim **3** further comprising an ear having two ends respectively and pivotally connected to two sides of the wheel seat.

**7**. The measuring wheel as claimed in claim **2**, wherein the wheel seat has a stand pivotally mounted on one side of the wheel seat.

**8**. The measuring wheel as claimed in claim **2** further comprising an ear having two ends respectively and pivotally connected to two sides of the wheel seat.

**9**. The measuring wheel as claimed in claim **1**, wherein the buckling unit includes

a pivotal board pivotally mounted on the first body and received in the assembling groove;

a resilient member mounted on the pivotal board;

a pivotal clasp pivotally mounted on the pivotal board, abutting against the resilient member, having one end aligning with the bottom surface of the first body, and having a protrusion inwardly extending from the end of the pivotal clasp for corresponding to the buckling groove in the second body; and

a pintle mounted through the pivotal board and the pivotal clasp for pivotally assembling the pivotal board and the pivotal clasp with the first body.

**10**. The measuring wheel as claimed in claim **9**, wherein the wheel seat has a stand pivotally mounted on one side of the wheel seat.

**11**. The measuring wheel as claimed in claim **9** further comprising an ear having two ends respectively and pivotally connected to two sides of the wheel seat.

**12**. The measuring wheel as claimed in claim **1**, wherein the wheel seat has a stand pivotally mounted on one side of the wheel seat.

**13**. The measuring wheel as claimed in claim **1** further comprising an ear having two ends respectively and pivotally connected to two sides of the wheel seat.

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